3: Wallace & Hoebel E-4, 5 (1933, 1945) 1952
NO6 Comanche NO6

pears to be weak. The eyes of about one-half of those studied by Goldstein appear to be slanted slightly to moderately. In most cases the outer canthi are inclined upward, but a few were observed with a downward slant. The so-called Mongolian fold is common among children, but disappears in most cases by the time adulthood is reached.

The Comanche face is broad, even for an Indian people. Goldstein asserts that "In this respect the Comanches are probably exceeded by few or no other tribe." On this wide visage is a broad, high, and long nose with an index of 69.4 as compared to 67.5 for old American whites. In breadth it exceeds that of the Sioux and the Indians of the Southwest, but is practically the same as that of the Shoshones. The depression of the root of the nose is shallow to medium in depth, and the bridge is straight to moderate. The mouth is moderately wide, and the lips are thin. The lower jaw appears to be moderately developed; the chin firm and of medium prominence. All in all, the Comanche exhibits not a "finely sculptured" visage, but rather a heavy face with fairly massive features. In form as well as in personality he is a rugged individual.

Since their arrival in the South Plains, the Comanches have incorporated great numbers of Mexican captives into their tribe, and Mexican infiltration continues today at a rapid pace. Mixture with the Negro seems to have occurred with extreme rarity, if at all. Clark Wissler found that only 62.9 per cent of the Comanches were "full-blood" in 1910, as compared to 96.9 per cent of the Wichitas and 24.2 of the Iowas, the two tribes having respectively the greatest and least amount of alien admixture.[5] That this admixture has continued at an accelerated pace is shown by Marcus S. Goldstein, who believed in 1931 that not more than 10 per cent of the adults could, with any assurance, be considered fullblood.[6]

The Comanches are members of the Uto-Aztekan language family in the sense that English-speaking peoples are Indo-European. The Uto-Aztekan family, which is one of the truly great linguistic stocks of ancient North America, has three major branches: Shoshonean, Sonoran, and Nahuatlan. The Shoshonean peoples, whose home is centered in the Great Basin region of what is now western United

[5] Clark Wissler, *North American Indians of the Plains*, 148.
[6] Goldstein, "Anthropometry of the Comanches," *loc. cit.*, 290.

4: Goldstein D-5 (ca. 1930)1934
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ANTHROPOMETRY OF THE COMANCHES[1]

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ONE TEXT FIGURE AND THREE PLATES

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[161] The Comanches, numbering some 1956 individuals,[2] at present reside on and near a government reservation in south-central Oklahoma, for the most part leading a sedentary, half-hearted agricultural existence. They were in immediate pre-reservation times a true and the southermost plains tribe,[3] noted as daring and ruthless raiders, who followed and lived largely on the buffalo, their nomadic and depredatory range extending from the Platte River in Wyoming and Nebraska to Durango in central Mexico. As early as 1717 and probably earlier, Comanche encampments were to be found in New Mexico and western Texas (Chaves, '06). Mooney (1898), however, considered them on the bases of language and traditions a "comparatively recent offshoot from the Shoshoni of Wyoming" (p. 161).

144 Admixture of blood, especially with Mexicans, as well as with Indians of other tribes and some whites has taken place certainly since early historical times, and continues to the present day. Mixture with the negro seems to have been very rare throughout their history; in the present population only one Comanche with even suspected negro blood was noted. Mooney, as early as 1896, was impressed by the extent of blood mixture among the Comanches, feeling that "at least

[1] Grateful acknowledgment is extended to the American Association for the Advancement of Science for a grant-in-aid which made possible the securing of the data here reported.

[2] Rept. Comm. Indian Affairs, Washington, 1932, p. 45.

[3] Wissler, C., N. A. Indians of the Plains. N. Y., 1927, p. 13.

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[pp. 1-288 not processed]

4: Goldstein D-5 (ca. 1930)1934
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144 one-quarter of the whole number have more or less of captive blood" (1898, p. 235). In 1927 Wissler tabulated 62.9 per cent of the Comanches as full-blood. It is the opinion of the writer that at present (1931) at most 10 per cent of the adults can with any assurance be considered full-blood. The Comanches themselves fully realize their almost total miscegenation.

619 631 The tribe had been subdivided into bands, the more important being Penateka, Yapa, Kwahadi, Kotsoteka, and Tanema. The first two in particular wandered south into Texas in early times, the other groups remaining north about the Arkansas River in Kansas. In the present investigation measurements were obtained on members of each of the mentioned bands, as well as on a few individuals of the Noyika band. The latter name apparently does not appear in the literature. However, Dr. Ralph Linton, of the University of Wisconsin, who recently did ethnological work among the Comanches, was kind enough to inform the writer that he too came across members of a Noyika division; he also remarks on the almost total elimination of the full-blood. The writer has not attempted to make anthropometric comparison between the various bands because of the totally inadequate numbers. Moreover, intermarriage appears to have been always indiscriminate with respect to band. At present distinction as to band seems largely lost, only the older people apparently remembering their old band affiliations.

ANTHROPOLOGICAL OBSERVATIONS

114 Although the Comanches have always been fairly numerous (7000 in 1690)[4] and an important factor in the history of the southern plains and Texas, little is reported on them ethnologically[5] and even less physically. Catlin (1842, p. 66)

[4] Mooney, J., The aboriginal population of America north of Mexico. Smiths. Misc. Coll., LXXX, no. 7, p. 13, 1928.

[5] For the linguistic classification and the history of the Comanches, see, in addition, Clark, W. P. (1885, article Comanche); Bur. Am. Ethnol. Bull. 30, ('07, '10, articles Comanche and Shoshonean); Kroeber ('06–'07, p. 97). For fuller titles see bibliography.

7: Richardson D-4 (no date) 1929
NO6 Comanche NO6

142 little beard."[8] However, it should be remembered that there had [144] been some Mexican admixture with the Comanche blood even as early as Catlin's time. All accounts agree that the women were generally low of stature, ugly and repulsive in appearance.

302 The men wore their hair long and generally ornamented it profusely, while the women cropped their hair close to the head. A Comanche dandy was most fastidious about his appearance and spent much time in the preparation of his toilet, especially if he was about to enter the presence of strangers. He did not shave, but instead, plucked his face clean of its scant growth of beard; and sometimes he also pulled out his eyebrows.[9]

291 The dress of the men consisted of leggins and moccasins, a breech cloth or flap, and a buffalo robe thrown over the shoulders if the weather was cold. Catlin's picture of a chief's children, made near Red River in 1834, shows the younger children naked, while the larger girls were comfortably and decently clad in buckskin, including mocassins, leggings, and a slip or dress with sleeves extending to the elbows and skirts well below the knees. Naturally there were many variations in dress and the buffalo and buck-skin were gradually supplanted by cloth and blankets secured from traders.[10]

291 A combination of the savages and civilized in dress sometimes 177 produced ludicrous results. A description of a prominent Comanche as he rode into camp on the Clear Fork, in Shackelford County, in 1854, runs thus:

> Naroni rode in grand costume. He wore an old blue military coat, with tarnished epaulettes, and covered with bullet buttons, a wampum necklace, almost equal to a breast-plate, numerous ear-rings, finger-rings, and a large ring in his nose, completely encircling his mouth, and bright red leggins.
>
> But his crowning glory was his head dress. From the crown of his head started out four long eagle's feathers, two on

8. Exploration of the Red River of Louisiana, in the year 1852, by R. B. Marcy, Captain Fifth Infantry, United States Army, assisted by George B. McClellan, Brevet Captain, United States Engineers, Washington, 1854; 33 Congress, 1st Sess. House Document (not numbered), page 98.

9. Special Report of Surgeon Alex B. Hasson, Fort Phantom Hill, 1852, in the Gazette, Austin, 1857.

10. North American Indians, II, plates 165-172. See, also, Marcy, as cited 98-99.

face, the right hand palm up, fingers curled, the left hand palm down, fingers extended. The upper part of the legs had been brought up to approximately a right angle with the body, with the lower part of the legs tucked back toward the hips. Soil movements, the weight of overlying stones, and a tree root had caused considerable displacement of the bones. The left humerus was shattered just above the proximal end, having been pressed against a stone by a tree root. The left radius and ulna had been moved up vertically two to four centimeters by the same root. The left ribs had collapsed into the thoracic region; the vertebrae had separated in the lumbar and thoracic regions; and the right ribs had broken as the thorax and shoulder girdle collapsed. The left tibia was shattered near the distal end, and both legs had been raised vertically some 5 cm. by the tree root. A galvanized pail had been placed upright in front of the chest (Fig. 4). A saddle and a beaded bag containing 52 brass wire bracelets had been placed below (upstream from) and behind the feet. In front of the body near the base of the sternum was one brass wire bracelet, which may have been on the left arm above the elbow at the time of burial and may have become displaced by the action of the root that grew through the burial and crushed the humerus against an overlying stone. Two partial iron hoops or straps were found east of (upstream from) the saddle parts.

THE SKELETON

This section draws freely from and with grateful acknowledgment to the work of Dr. Clyde Snow.

Only one investigator has reported in detail on the anthropometry of the Southern Plains tribes: Goldstein worked with the Comanches in 1931 and concluded at the time of his research that only ten percent of the adults could be considered full-blood Comanches (Goldstein 1934:290). The measurements and indices made by Dr. Snow closely agree with the data presented by Goldstein. In Table 1, Dr. Snow lists the skeletal measurements and descriptions. It should be noted that cranial capacity was derived using the Lee-Pearson formula (Lee and Pearson 1901). In addition to the measurements and indices obtained from the skeleton, Dr. Snow has prepared a table summarizing the data as traits indicative of sex, race, and cultural status. Table 2 thus shows at a glance some important characteristics of this skeleton.

[See p. 320-B--Analyst.]

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Figure 4. Galvanized pail from 34CM221.

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128 *Sex:* Table 2 shows the morphological and metric traits diagnostic of sex. Both the pelvis and the skull are typically female. A more objective assessment of sex is obtained with the discriminant function formula of Giles and Elliot (1963). The value derived from the formula, 899.02, lies on the "female" side of the sectioning point of 912.14 for American Indian crania.

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[141]
[128] *Race:* Table 2 indicates a predominately Mongoloid racial affinity. The Giles-Elliot discriminant analysis for race (1962) would classify the skull as "indeterminate" but with rather less likelihood of being white than Negro or American Indian. A possible explanation for the "indeterminate" status of the skull lies in the fact that Southern Plains tribes have long been active in assimilating non-Indian captives into their breeding populations.

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128 *Age:* Since the symphyseal facets of the pubis were largely destroyed, cranial suture were relied on for age. The mean for 16-segment closure ratings is 1.09 (Nemerski, Harsanyi, and Ascadi: 1960:95), indicating an age of 25-35 years. This estimate is partly supported by the minimal osteo-arthritic lipping of the lumbar vertebrae,

[TEXT CONTINUED ON PAGE 320-A]
[A 318-B]

18: Jackson A-4,5 (1969) 1972 NO6 Comanche NO6
Oklahoma

Table 1 (continued)

Transverse diameter	18	18
Anterior-posterior diameter	21	21
Femur		
Maximum length	415	--
Physiological length	409	--
Transverse diameter	26	--
AP diameter	27	--
Subtrochanteric diameter, AP	25	--
Subtrochanteric diameter, transverse	30	--
Head diameter, vertical	45	--
Head diameter, horizontal	46	--
Bicondylar diameter (estimate)	73	--
Collo-diaphyseal angle	137°	--
Tibia		
Maximum length	322	318
AP diameter (nutrient foramen)	32	30
Transverse diameter (nutrient foramen)	22	21
Bicondylar diameter	--	70
Fibula		
Maximum length	318	--

Long bone indices	Value	Class
Diaphyseal index, humerus	75.2	Platybrachic
Brachial index (humerus/radius)	72.4	Short
Platoleneal index, ulna	85.7	Uroleneal
Index of robustness, femur	13	Average
Pilasteric index, femur	103.8	Weak
Platymeric index, femur	83.3	Platymeric
Tibio-femoral index	78.7	--
Cnemial index	69.4	Mesocnemic
Humero-femoral index	73.3	--
Intermembral index	70	Average

the general texture of the bones, and the relatively unworn second and third molars.

Stature: Since there are no reliable estimates for determining female Mongoloid stature, the Trotter-Gleser table (Trotter and Gleser 1952, Table 13) for white females was used. Thirteen calculations were made; the results range from 152.78 cm. to 162.80 cm., averaging 157.31 cm. Since Mongoloids have rather shorter legs relative to trunk height than do whites, this average may be an underestimate by two to five centimeters. Goldstein (1934:299) reported an average stature of 156.1 cm. for 25 full-blood Comanche females measured in 1931. Since Indians of mixed blood almost always exhibit maximum dimensions greater than full-bloods, the skeleton would fit into the range of variation expected for either the full-blood or the mixed-blood population.

Cultural status: The heavy dental attrition indi-

18: Jackson A-4,5 (1969) 1972 NO6 Comanche NO6
Oklahoma

TABLE 2
TRAITS INDICATIVE OF
SEX, RACE, AND CULTURE STATUS

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Trait	Sex		Culture		Race		
			Primitive	Modern	Negroid	Caucasoid	Mongoloid
Skull and Mandible							
Mesocrany		x				x	x
Low Skull			x				
Cranial Capacity		x					
Chinning							x
Mesony							x
Rhesiocrany			x				x
Ischnomethopia					x		x
Leptoprosopic Index					x		x
Hypsicephaly		x					x
Mesostosis							x
Brachystaphyline							x
Brachycrany						x	x
Orthognathy (Upper Face)		x				x	x
Mesognathy (Alveolar)		x					x
Facial Flatness							x
Nuchal Crests		x					
Mastoid Processes		x					
Supra-orbital Ridges		x					
Arch Form						x	x
Molar Form							x
Premaxillary Suture							x
Dental Wear			x				
Shovel-shaped Incisors							x
Edge-to-Edge Bite			x				
Mandibular Index					x	x	
Fronto-gonic Index			x				
Gonio-Condylar Index						x	x
Ramus Index							x
Gonial Angle		x					x
Symphyseal Angle							x
Simple Sutures					x		x
Post-Cranial							
Humeral Head Diameter		x					
Platybrachia							x
Supracondylar Foramen Breadth		x					x
Brachial Index			x			x	
Virginy		x					x
Iliac Breadth Index		x					
Sciatic Notch Angle		x					
Acetabular Index		x					
Preauricular Sulcus		x					
Bicondylar Diameter Femur		x					
Index of Platymeria							x
Pilastric Index		x				x	
Platymeria		x	x			x	
Megacnemia		x					x
Squatting Facets			x				

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cates a coarse diet with much gritty contamination. This wear is relatively greater in the anterior dental arcade, indicating some use of the teeth in preparing hides, cordage, etc. At least one tibia shows the presence of squatters facet, and the femurs are platymeric. Both conditions are indicative of primitive living.

Conclusions: The osteological evidence thus indicates an adult female Plains Indian, 25-35 years old, who lived at a time before acculturative shifts in diet would reduce tooth wear. Although the observations fit the data given by Goldstein (1934), it is not possible to assign the skeleton definitely to the Comanche because of the limited sample on which the comparison was based.

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[p. 320-B]

26: Cummins & Goldstein D-5 (no date) 1932 NO6 Comanche NO6
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Of the 79 Comanches here reported 27 are males and 52 are females. Thirty-four are full-blood or probably full-blood, 41 are mixed (especially with 'Mexican') or probably mixed, and 4 are questionable. The prints were obtained by Goldstein in the course of other work on the physical anthropology of the Comanches, and the foregoing statement of the racial composition of the sample is based upon individual diagnoses employing the usual criteria (Hrdlička's skin reaction, pigmentation, character of hair, eye color, facial features, inquiry respecting geneaology, etc.). While there was no specific investigation into possible family relationships among the individuals in the series, the circumstances of collection indicate that close relationships are negligible in number if present at all.

The prints, prepared by the common printers' ink method, are generally of excellent technical quality, and in many cases there are duplicate impressions. In certain determinations the full series of seventy-nine subjects cannot be utilized. Two subjects are each represented by prints of but one hand, and occasionally a print may be incomplete or indecipherable in a critical territory. Such instances are appropriately set aside in the calculations, and it is to be emphasized that all omissions of prints in the several calculations are due solely to this correction, every available observation having been included.

The methods of interpretation and formulation of the apical finger patterns follow Galton (1892); the palmar features are formulated after Cummins et al. ('29).

Palmar main lines

The terminations of palmar main lines are summarized in table 1. Line A shows a high frequency of terminations in the proximal palmar margin (positions 1 and 2) and in the more proximal portion of the ulnar margin (position 3). Line C presents an exceptional abundance of suppressed and abortive states (formulated X, x, and O in accordance with the specific character of the line), which occur in 25.5 per cent

26: Cummins & Goldstein D-5 (no date) 1932 NO6 Comanche NO6
Oklahoma

Palmar patterns

142 The occurrence of patterns in the five palmar areas are
128 listed in table 2. It will be understood that in each case the determination aims only to distinguish the occurrence of patterns and patternless configurations. Each figure in the table applies to the frequency of patterns, while the implied percentile remainder indicates the frequency of patternless configurations.

142 Especially outstanding, in the figures of table 2, are the low frequency of hypothenar patterns and the abundance of the thenar/first interdigital.

TABLE 2

Percentile occurrences of true patterns and pattern vestiges (not including 'multiplications') of the five palmar areas. Compiled from 77 right palms and 79 lefts

PATTERN	RIGHT, PER CENT	LEFT, PER CENT	AVERAGE, PER CENT
Hypothenar	15.6	19.0	17.3
Thenar/First interdigital	28.6	41.8	35.2
Second interdigital	2.6	2.5	2.5
Third interdigital	41.6	19.0	30.3
Fourth interdigital	54.5	73.4	63.9

Apical finger patterns

[128] Calculation of the total frequencies of the pattern types is based upon sixty-seven individuals, the remainder of the finger-print sets being incomplete and thus unsuited to the determination. In these 670 prints the distribution of pattern types is as follows: whorls, 43.3 per cent; radial loops, 1.9
142 per cent; ulnar loops, 48.5 per cent; arches, 6.3 per cent. The corresponding figures in Downey's series of fifty Arapahoes
144 (loc. cit.) are: whorls, 47.6 per cent; radial loops, 3.6 per cent; ulnar loops, 44.2 per cent; arches, 4.6 per cent. It would appear that the abundance of whorls is a substantial Indian trait.

128 In view of the high frequency of whorls, it may be of interest to state the composition of the material in terms of

26: Cummins & Goldstein D-5 (no date) 1932 NO6 Comanche NO6
Oklahoma

142 tendency toward suppression of the characteristic dextral superiority in the occurrence of whorls. In this connection it may be remarked that there is yet another indication of suppression of a characteristic bimanual difference, expressed in the palmar hypothenar pattern. And it should not be forgotten that corresponding bimanual comparisons, involving both apical and hypothenar patterns have been previously reported in Indians of southern Mexico and Central America (Cummins, '30).

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POSSIBLE INFLUENCE OF RACIAL ADMIXTURE

128 Inasmuch as individual diagnoses of racial admixture are available, it is possible to isolate the series of full-bloods for separate analysis. This separation is suggested not only by the obvious desirability of treating a full-blood stock when it can be secured, but also by the known results of admixture in Jamaican black-white crosses (I. D. Steggerda). In the Jamaican crosses the "Brown individuals approximate the Blacks more nearly than they do the Whites" in dermatoglyphic features. It is evident that traits of the Comanches 142 are not generally obscured by the inclusion in the sample of 144 a large proportion of mixed stock, and it may be assumed 128 accordingly that either the sources of admixture are closely allied in their dermatoglyphics or that the Comanche traits dominate the admixture. The separate calculations of palmar main lines, palmar patterns, and apical finger patterns reveal but one item in which the incidences are significantly different in the selected full-bloods. This feature is the hypothenar pattern, which occurs in only 4 per cent of the full-blood hands. With this exception, therefore, it is evident that the inclusion of mixed-bloods has not vitiated the series as a sample of Comanche dermatoglyphics.

26: Cummins & Goldstein D-5 (no date) 1932 NO6 Comanche NO6
Oklahoma

SUMMARY

This series, comprising seventy-nine Comanche Indians, presents the following noteworthy features in the palmar dermatoglyphics:

Line A is characterized by the abundance of very low terminations. Line C is frequently abortive or absent. Line D does not commonly extend far radialward. Hypothenar patterns are infrequent, while thenar/first interdigital patterns are abundant. Apical finger patterns present a high frequency of whorls.

Though the report is presented as a mere record of findings, without comparison with other races, it may be noted that there are suggestive likenesses to the Eskimos and to the Indians of southern Mexico and Central America.